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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,722	07/30/2004	Hui-Hua Kuo	MTKP0087USA	4721

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NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION
P.O. BOX 506
MERRIFIELD, VA 22116

EXAMINER	
HOLDER, ANNER N	

ART UNIT	PAPER NUMBER
2621	

NOTIFICATION DATE	DELIVERY MODE
11/01/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

winstonhsu.uspto@gmail.com
Patent.admin.uspto.Rcv@naipo.com
mis.ap.uspto@naipo.com.tw

Office Action Summary	Application No.	Applicant(s)	
	10/710,722	KUO ET AL.	
	Examiner	Art Unit	
	Anner Holder	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/30/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant's recitation of a third and forth memory space in the absence a first and second memory space is vague and indefinite.

Claim Objections

3. Claims 1-18 are objected to because of the following informalities: Applicant's use of unacceptable language "motion vector(s)" and "predictor(s)", it is suggested that applicant use language such as "at least one motion vector" . Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 6, 7, 8, 12, 13, 16, 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawkins et al. (Hawkins) US 6,519,287 B1.

6. As to claim 1, Hawkins teaches a memory management method used in the decoding process of a video frame, for storing motion vector(s) of a decoded first macroblock as candidate predictor(s) for future use in the decoding process, the method comprising: allocating a first memory space and a second memory space in a first memory, wherein each of the first and the second memory spaces is sufficient for storing one motion vector; [Abstract; Fig. 7; Fig. 9; Fig. 3; Col. 4 Lines 30-42] and when the first macroblock comprises only one first motion vector, storing the first motion vector in the first or the second memory space. [Abstract; Fig. 7; Fig. 9; Col. 5 Lines 37-45; Col. 6 Lines 52-62; Fig. 3; Col. 4 Lines 30-60]

Hawkins does not specifically teach the allocation of a first or second memory space for motion vector storage.

However, it well known in the art to allocate within a memory array, which is taught by Hawkins, a single space or address that can be assigned for a single motion vector. (Official Notice)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hawkins's invention by incorporating the allocation of space within a memory array because it is a standard protocol routinely implemented in memory management system.

7. As to claim 2, Hawkins teaches when the first macroblock comprises a first block, a second block, a third block, and a fourth block, storing the motion vector of the third block in the

first memory space and storing the motion vector of the fourth block in the second memory space. [Abstract; Fig. 7; Fig. 9; Col. 5 Lines 37-45; Col. 6 Lines 52-62; Fig. 3; Col. 4 Lines 30-60; It is well known in the art that addresses within memory can be assigned]

8. As to claim 6, Hawkins teaches the first memory is a DRAM, an SRAM, or registers. [Abstract; Col. 2 Lines 55-61; Fig. 9; Fig. 1; Fig. 3; Col. 4 Lines 30-42]

9. As to claim 7, see rejection of claim 1 above.

10. As to claim 8, see rejection of claim 2 above.

11. As to claim 12, see rejection of claim 6 above.

12. As to claim 13, Hawkins teaches a row-based memory management method used in the decoding process of a video frame, for storing the motion vectors of a plurality of decoded macroblocks as candidate predictors for use in the decoding process, wherein each row of the video frame comprises N macroblocks, the method comprising: allocating N memory units in a first memory, wherein each memory unit is sufficient for storing the motion vector(s) of one macroblock; [Abstract; Fig. 7; Fig. 9; Fig. 3; Col. 4 Lines 30-42] when a first macroblock located at an L_{th} row and a K_{th} column is decoded, storing the motion vector(s) of the first macroblock in a K_{th} memory unit of the memory units to overwrite the motion vector(s) of a second macroblock previously stored in the K_{th} memory unit, wherein the second macroblock is located at an $(L-1)_{th}$ row and the K_{th} column, K is an integer between 1 and N, and L is an integer larger than 1. [Abstract; Fig. 7; Fig. 9; Col. 5 Lines 37-45; Col. 6 Lines 52-62; Fig. 3; Col. 4 Lines 30-60; It is well known in the art that addresses within memory can be assigned, allocated space can be reused by overwriting and a memory array structure comprises rows and columns]

Hawkins does not specifically teach the allocation of a first or second memory space for motion vector storage.

However, it well known in the art to allocate within a memory array, which is taught by Hawkins, a single space or address that can be assigned for a single motion vector. (Official Notice)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hawkins's invention by incorporating the allocation of space within a memory array because it is a standard protocol routinely implemented in memory management system.

13. As to claim 16, see rejection of claim 6 above.

14. As to claim 17, Hawkins teaches allocating an additional memory unit in a second memory, wherein the additional memory unit is capable of storing the motion vector(s) of one macroblock; [Abstract; Fig. 7; Fig. 9; Fig. 3; Col. 4 Lines 30-42] when a third macroblock of the video frame is decoded, storing the motion vector(s) of the third macroblock in the additional memory unit to overwrite the motion vector(s) of a fourth macroblock previously stored in the additional memory unit, wherein the fourth macroblock is decoded immediately before the third macroblock. [Abstract; Figs. 5-7; Fig. 9; Col. 5 Lines 37-45; Col. 6 Lines 52-62; Fig. 3; Col. 4 Lines 30-60; It is well known in the art that addresses within memory can be assigned, allocated space can be reused by overwriting and a memory array structure comprises rows and column]

15. As to claim 18, see rejection of claim 6 above.

16. Claims 3-5, 9-11, 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawkins et al. (Hawkins) US 6,519,287 B1 in view of Kondo et al. (Kondo) US 7,116,372 B2.

17. As to claim 3, Hawkins teaches the method of claim 1.

Hawkins does not specifically teach the video frame is a progressive frame.

Kondo teaches the video frame is a progressive frame. [Abstract; Col. 11 Lines 29-48; Co. 11 Line 66 – Col. 12 Line 6]

It would have been obvious at the time the invention was made to incorporate the deinterlacing method of Kondo with the motion vector storage method taught by Hawkins, enabling reduction of degradation of image quality.

18. As to claim 4, Hawkins teaches the method of claim 1.

Hawkins does not specifically teach the video frame is an interlaced frame.

Kondo teaches the video frame is an interlaced frame. [Abstract; Col. 11 Lines 29-48; Co. 11 Line 66 – Col. 12 Line 6]

It would have been obvious at the time the invention was made to incorporate the deinterlacing method of Kondo with the motion vector storage method taught by Hawkins, enabling reduction of degradation of image quality.

19. As to claim 5, Hawkins (modified by Kondo) teaches when the first macroblock comprises a first field and a second field, storing the motion vector of the first field in the first

memory space and storing the motion vector of the second field in the second memory space. [Abstract; Col. 11 Lines 29-48; Co. 11 Line 66 – Col. 12 Line 6]

20. As to claim 9, see above rejection of claim 3.

21. As to claim 10, see above rejection of claim 4.

22. As to claim 11, see above rejection of claim 5.

23. As to claim 14, see above rejection of claim 3.

24. As to claim 15, see above rejection of claim 4.

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hoang (US 6,295,089 B1); Malinowski (US 4,888,741); Ward et al. (US 4894770).

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anner Holder whose telephone number is 571-270-1549. The examiner can normally be reached on M-Th, M-F 8 am - 3 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ANH 10/22/07

Mehrdad Dastouri

MEHRDAD DASTOURI
SUPERVISORY PATENT EXAMINER
TC 2600